NAME: _____ PER: _____

MCAS QUESTIONS: PHASE CHANGES

1. If 1 kg of the compound toluene melts at −95°C, then 500 g of toluene will

A. melt at −47.5°C.

B. melt at −95°C.

C. boil at 95°C.

D. boil at 47.5°C.

EXPLAIN YOUR ANSWER: _____

2. In a laboratory, a sealed container with 100 g of steam is cooled until all the steam becomes a liquid. The container is then cooled further until all the water becomes a solid.

Which of the following remains constant during both of these changes?

A. the mass of the water

B. the pressure in the container

C. the total energy of the water

D. the position of the atoms in the container

EXPLAIN YOUR ANSWER: _____

3. Which statement about the molecules in ice and the molecules in liquid water is correct?

A. The molecules in ice have more energy than the molecules in liquid water.

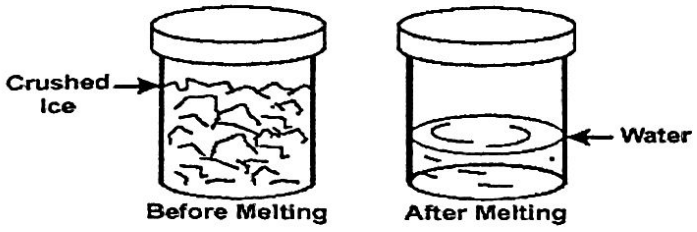
B. The molecules in ice contain different atoms than the molecules in liquid water.

C. The molecules in ice have more electric charge than the molecules in liquid water.

D. The molecules in ice are less free to move than the molecules in liquid water

EXPLAIN YOUR ANSWER: _____

4. A can was filled with crushed ice, sealed, and massed. The ice was melted by slowly warming the can and its contents. No water vapor escaped and no air entered the can.



If the can is then massed again, what is the **best** prediction of the mass?

A. The mass would be the same.

B. The mass would be more.

C. The mass would be less.

D. It is impossible to predict without more information.

EXPLAIN YOUR ANSWER: _____

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5. A container is filled with 100 mL of water and placed in a freezer. The water in the container freezes at 0°C. A second container filled with 90 mL of water is placed in a second freezer. At what temperature does this second container of water freeze?

A. −10°C

B. −1°C

C. 0°C

D. 10°C

EXPLAIN YOUR ANSWER _____

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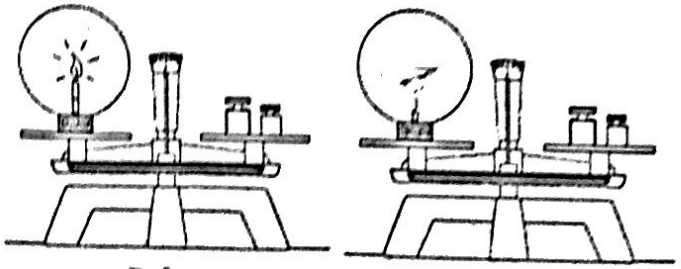
6

. The diagram below shows a balance being used to measure a burning candle in a sealed glass ball before and after the burning is complete.



Before

After

As the candle burns, the size of the candle decreases, but the reading on the balance does not change. Which of the following is demonstrated by this experiment?

A. The total mass of the system is constant.

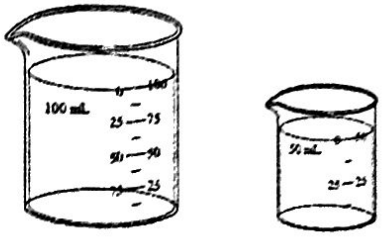
B. Energy is converted to mass when the candle is burned.

C. Smoke particles have more mass than molecules of candle wax.

D. Kinetic energy is converted to potential energy when the candle is burned.

explain your answer

7. The two beakers below contain pure water.



Which of the following properties is the same for both of these samples?

A. mass B. weight C. volume D. boiling point

8. What other property (characteristic) that we have studied is the same for both of these samples?